

REMARKS

In this response, claims 15 and 39 have been amended. The amendments to claims 15 and 39 are fully supported by the originally filed application. Thus, no new matter is introduced. Reconsideration of pending claims 15-42 and 48 is respectfully requested.

Amended Claim 15

Applicant has amended independent claim 15 so that it is directed to a coating material now includes, among other features,

- a binding agent in an amount of about 10 to about 30 weight percent of the coating material;
- at least one filler ...; and
- a photocatalytically active agent in an amount of about 2 to about 15 weight percent of the coating material;
- wherein the binding agent is capable of decomposing ... by a photocatalytic action of the photocatalytically active agent to form a microstructured, self-cleaning surface that photocatalytically reduces by about 0.1 μm or more per year in response to external weathering ..., and
- wherein the binding agent includes silicone and/or silicate.

Amended claim 15, has been amended so that it is clear a photocatalytically active agent is present in an amount of about 2 to about 15 weight-% of the coating material. This amendment is based on original claim 13 and on the last paragraph on page 8 of the translated English description.

In addition, it has been specified in amended claim 15 that the binding agent includes silicone and/or silicate (and thus, possibly a mixture of silicone and silicate). This amendment is based on originally filed claim 4.

The coating material of the present invention, as recited in claim 15, allows for the provision of a surface having self-cleaning properties due to a "hydrophobicity" caused by special surface structures (cf. last paragraph of page 4 of the English description).

The surface does not only have self-cleaning properties, but is also accompanied by the automatic regeneration of damaged areas by the constant generation of new

microstructures due to the catalytic decomposition of binding agent layers between the filler particles. Thus, the present invention allows "the formation of surfaces which maintain permanently self-cleaning properties" (cf. third paragraph of page 4 of the English description).

However, despite the automatic regeneration, the microstructured surfaces according to the present invention "achieve sufficient resistance to weathering" (cf. second paragraph of page 5 of the English description).

It is respectfully submitted that the above-mentioned properties are achieved by providing a coating material comprising:

- a binding agent including silicone or silicate or a mixture of silicone and silicate in an amount of about 10 to about 30 weight-% of the coating material;

- at least one filler including particles having a size and/or a surface roughness of about 10 μm or less; and

- a photocatalytically active agent in an amount of about 2 to about 15 weight-% of the coating material (cf. amended claim 15).

A coating material not having these features will result in surfaces that do not have sufficient resistance to weathering and/or will not show the claimed automatic regeneration of damaged areas by constant generation of new microstructures due to the catalytic decomposition of a binding agent and/or will not have the claimed microstructures (i.e. will not show the described hydrophobicity).

Rejection under 35 U.S.C. § 102

Claims 15-23 and 30-42 stand rejected under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as being obvious over WO/2003/102091 ("Takahashi"), where U.S. Patent Publication No. 2005/0277543 is used as the English translation. Applicant respectfully traverses this rejection for at least the following reasons.

In contrast to amended claim 15, Takahashi, at paragraph [0053], teaches that the percentage of the photocatalytic oxide particles in the total solid matter is 5% by

weight or less. Considering that reference is made to “*the total solid matter*”, paragraph [0053] of Takahashi has to be read in connection with paragraph [0044] of Takahashi, which teaches that the compositions disclosed in Takahashi comprise up to 500 parts by weight of water per 100 parts of solid matter. Taking this into account, it is clear that the compositions disclosed in Takahashi comprise less than 2 weight-% of the photocatalytic agent in respect of the total coating material.

This is made even more clear with reference to Example 1 of Takahashi. Even though Example 1 comprises more photocatalytic oxide particles than taught in paragraph [0053] of Takahashi, it comprises less photocatalytic oxide particles than indicated in amended claim 15 (the composition of Example 1 consists of 100 parts of solid matter, 2.1 parts by weight of film integrity assistant per 100 parts of the total solid matter and 433 parts per weight of water per 100 parts of the total solid matter; thus, the composition of Example 1 comprises 1.9 weight-% photocatalytic oxide particles of the total coating material only).

In addition, amended claim 15 is not merely an optimization of Takahashi by one skilled in the art because Takahashi does not teach the automatic regeneration of microstructured surfaces by controlled decomposition of the binding agent. In contrast, Takahashi teaches in paragraph [0164] that the decomposition of the organic resin ingredient in the coating film is to be avoided. In addition, Takahashi does not teach which one of the binding agents listed in paragraph [0083] of Takahashi is to be used.

Accordingly, it is respectfully submitted that Takahashi does not anticipate or render obvious claim 15, and thus, claim 15 is allowable. Claims 16-20 and 30-42 depend, either directly or indirectly on claim 15 and therefore, they are allowable for at least the reasons claim 15 is allowable.

Rejections under 35 U.S.C. § 103(a)

Claims 15-23, 30-40, 42 and 48 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,337,129 (“Watanabe”). Applicant respectfully traverses this rejection for at least the following reasons.

In contrast to amended claim 15, it is respectfully submitted that Wanatabe does not teach or suggest which of the binding agents listed in lines 36-39 of column 12 of Watanatabe is to be used. In addition, Wanatabe teaches that the preferred amount of photocatalytic oxide particles is from 20-50% by weight (See Col. 14, line 48 of Watanatabe).

It is respectfully submitted that the present invention is based on an irreversible decomposition of the binding agent, which results in an automated regeneration of a microstructured, self-cleaning surface. In contrast, Wanatabe teaches a reversible process. According to Col. 4, lines 9-25 of Wanatabe, the reversible process is initiated by exposure of the surface to light. This appears to induce a hydrophilicity (not a hydrophobicity) which "*persists so far as light irradiation is continued*" (Col. 4, lines 14-15 of Watanatabe). Considering that Wanatabe does not teach microstructured surfaces maintaining permanently self-cleaning properties, which have sufficient resistance to weathering despite the automatic regeneration of the surface by controlled decomposition of a binding agent in between filler particles having a size of about 10 μm or less, it is respectfully submitted that the present invention is not merely an optimization of a coating material as taught by Watanatabe.

Accordingly, it is respectfully submitted that Watanatabe does not render obvious claim 15, and thus, claim 15 is allowable. Claims 16-23, 30-40, 42 and 48 depend, either directly or indirectly on claim 15 and therefore, they are allowable for at least the reasons claim 15 is allowable.

Claims 15-20, 24, and 30-41 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,547,823 ("Murasawa") in view of WO99/51345 ("Escaleffre"). Applicant respectfully traverses this rejection for at least the following reasons.

In contrast to amended claim 15, it is respectfully submitted that the composition of Example 3 of Murasawa contains 90% by volume of titanium oxide (cf. line 45 of column 7). It is respectfully submitted that such a composition will result in a surface

that does not only have a completely different structure, but also has “*an extremely reduced rate of decomposition*” (See Murasawa, Col. 3, line 9), at least in part due to the presence of an inorganic adhesive. Thus, Murasawa et al. clearly does not teach the controlled decomposition of a binding agent in order to provide an automatically self-regenerating surface.

It is respectfully submitted that Escaffre does not make up for the lack of teaching in Murasawa.

Accordingly, it is respectfully submitted that Murasawa and Escaffre do not render obvious claim 15, and thus, claim 15 is allowable. Claims 15-20, 24, and 30-41 depend, either directly or indirectly on claim 15 and therefore, they are allowable for at least the reasons claim 15 is allowable.

Claims 21-29 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Watanabe as applied to claims 15-23, 30-40 and 42, in view of U.S. Patent No. 6,037,289 (“Chopin”). Applicant respectfully traverses this rejection for at least the following reasons.

As noted previously, claims 21-29 depend, either directly or indirectly, on claim 15 and therefore they are allowable for at least the reasons claim 15 is allowable. It is respectfully submitted that Chopin does not make up for the lack of teaching in Watanabe.

Claims 21-29 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Takahashi as applied to claims 15-20 and 30-42, in view of Chopin. Applicant respectfully traverses this rejection for at least the following reasons.

As noted previously, claims 21-29 depend, either directly or indirectly, on claim 15 and therefore they are allowable for at least the reasons claim 15 is allowable. It is respectfully submitted that Chopin does not make up for the lack of teaching in Takahashi.

Claims 21-23 and 25-29 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Murasawa and Escaffre as applied to claims 15-20, 24, and 30-41, in view of Chopin. Applicant respectfully traverses this rejection for at least the following reasons.

As noted previously, claims 21-23 and 25-29 depend, either directly or indirectly, on claim 15 and therefore they are allowable for at least the reasons claim 15 is allowable. It is respectfully submitted that neither Escaffre nor Chopin make up for the lack of teaching in Murasawa.

Conclusion

For at least these reasons, a Notice of Allowance is earnestly solicited. Please contact the undersigned at (503) 796-2997 regarding any questions or concerns associated with the present matter. If any fees are due in connection with this paper, the Commissioner is authorized to charge Deposit Account 500393.

Respectfully submitted,
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